

## REMARKS

In connection with Applicants' Request for Continued Examination (RCE), Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the subject matter identified in caption, pursuant to and consistent with 37 C.F.R. §1.114, and in light of the remarks which follow.

Claims 22, 28-39, 45 and 47 are pending in this application. Claims 1-21 were previously cancelled. Claims 23-27, 40-45 and 46 have been cancelled in this amendment. Claims 31-39 and 47 have been withdrawn from consideration by the Examiner.

Claims 22 and 31 have been amended to recite a magnesium aluminum hydroxalcite intercalated by precipitated silica, the magnesium aluminum hydroxalcite having a Mg/Al molar ratio of between 2 and 4. Support for the hydroxalcite being a magnesium aluminum hydroxalcite is found in the specification at least on page 2, lines 27 - 28. Support for the hydroxalcite being intercalated by precipitated silica is found in the specification at least on page 2, lines 8-10. Support for the hydroxalcite having a Mg/Al molar ratio of between 2 and 4 is found in the specification on page 2, line 30. Claims 28 and 30 have been amended to have antecedent basis in the claim from which they depend. Claims 31 and 47 have been amended to delete extraneous claim language.

No new matter has been introduced in making these amendments.

Applicant gratefully acknowledges the Examiner's withdrawal of the rejection of Claims 23, 24, 26-28 and 30 under 35 U.S.C. § 112, second paragraph.

**Restriction Requirement**

In response to the restriction requirement, Applicants had elected with traverse Group 1, Claims 20-30, drawn to a hydrotalcite intercalated by silica. Applicant believes that claims directed to processes for making the hydrotalcite, which are found in Group II (Claims 31-34 and 47) and claims directed to the use of the hydrotalcite, which are found in Group III (Claims 35-39) would be eligible for rejoinder upon the determination that product claims are allowable, provided that all of the limitations of the product claims are included in the process claims. Claims 31-39 and 47 are withdrawn but are being maintained in this application as the restriction requirement indicates that they would be eligible for rejoinder.

**35 U.S.C. § 103(a) Obviousness Rejection**

1. Claims 22-30, 40 and 43-46 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaminsky et al. (US 7,046,439).

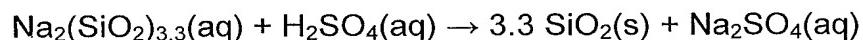
Claims 22, 28-30 and 45 remain in this application. Applicants respectfully submit that these claims are not obvious over Kaminsky et al. and that these claims are allowable.

To establish a *prima facie* case of obviousness, three basic criteria must be met. (M.P.E.P. § 2143) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Secondly, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Kaminsky teaches an optical unit having nano-particle/polymer blend compositions, where the compositions contain colloidal inorganic oxide particles. The Office Action acknowledges that Kaminsky fails to disclose a hydrotalcite having Mg/Al molar ratio within the presently claimed range. (page 4, lines 5-6). The Office Action of August 21, 2009 acknowledges that Kaminsky fails to disclose compositions comprising hydrotalcite intercalated by silica. (page 5, second paragraph) Kaminsky does not teach a hydrotalcite intercalated by precipitated silica. One of ordinary skill in the art would recognize that precipitated silica is distinct from colloidal silica. A description of precipitated silica is found on the internet at: [http://en.wikipedia.org/wiki/Precipitated\\_silica](http://en.wikipedia.org/wiki/Precipitated_silica). The information on this site includes:

#### Production

The production of precipitated silica starts with the reaction of an alkaline silicate solution with a mineral acid. Sulfuric acid and sodium silicate solutions are added simultaneously with agitation to water. Precipitation is carried out under alkaline conditions. The choice of agitation, duration of precipitation, the addition rate of reactants, their temperature and concentration, and pH can vary the properties of the silica. The formation of a gel stage is avoided by stirring at elevated temperatures. The resulting white precipitate is filtered, washed and dried in the manufacturing process.



#### Properties

The particles are porous. Primary particles with a diameter of 5 - 100 nm, and specific surface area 5-100 m<sup>2</sup>/g. Agglomerate size is 1 - 40 µm with average pore size is > 30 nm. Density: 1.9 - 2.1 g/cm<sup>3</sup>.

A description of colloidal silica is found on the internet at:

[http://en.wikipedia.org/wiki/Colloidal\\_silica](http://en.wikipedia.org/wiki/Colloidal_silica). The information on this site includes:

Colloidal silicas are suspensions of fine amorphous, nonporous, and typically spherical silica particles in a liquid phase.

Properties

Usually they are suspended in an aqueous phase that is stabilized electrostatically. Colloidal silicas exhibit particle densities in the range of 2.1 to 2.3 g/cm<sup>3</sup>.

Most colloidal silicas are prepared as monodisperse suspensions with particle sizes ranging from approximately 30 to 100 nm in diameter. Polydisperse suspensions can also be synthesized and have roughly the same limits in particle size. Smaller particles are difficult to stabilize while particles much greater than 150 nanometers are subject to sedimentation.

Manufacture

Colloidal silicas are most often prepared in a multi-step process where an alkali-silicate solution is partially neutralized, leading to the formation of silica nuclei. The subunits of colloidal silica particles are typically in the range of 1 to 5 nm. Whether or not these subunits are joined together depends on the conditions of polymerization. Initial acidification of a water-glass (sodium silicate) solution yields Si(OH)<sub>4</sub>.

If the pH is reduced below 7 or if salt is added, then the units tend to fuse together in chains. These products are often called silica gels. If the pH is kept slightly on the alkaline side of neutral, then the subunits stay separated, and they gradually grow. These products are often called precipitated silica or silica sols. Hydrogen ions from the surface of colloidal silica tend to dissociate in aqueous solution, yielding a high negative charge. Substitution of some of the Si atoms by Al is known increase the negative colloidal charge, especially when it is evaluated at pH below the neutral point. Because of the very small size, the surface area of colloidal silica is very high.

The colloidal suspension is stabilized by pH adjustment and then concentrated, usually by evaporation. The maximum concentration obtainable depends on the on particle size. For example, 50 nm particles can be concentrated to greater than 50 wt% solids while 10 nm particles can only be concentrated to approximately 30 wt% solids before the suspension becomes too unstable.

The above information demonstrates that precipitated silica is distinct from colloidal silica.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to

combine reference teachings. There is no suggestion or motivation in Kaminsky to modify Kaminsky to obtain the composition of the present invention. While Kaminsky lists numerous layered materials (col. 31, line 60 - col. 14, line 37), Kaminski does not provide any suggestion or motivation to use a magnesium aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4. Kaminski does not provide any suggestion or motivation to intercalate precipitated silica within a magnesium aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4. Therefore there is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to obtain the applicants' invention.

To establish a *prima facie* case of obviousness, there must be a reasonable expectation of success. There would not be a reasonable expectation of success in obtaining the applicants' invention given that Kaminsky does not teach or suggest a magnesium aluminum hydrotalcite intercalated by precipitated silica, where the magnesium aluminum hydrotalcite has a Mg/Al molar ratio of between 2 and 4. There cannot be a reasonable expectation of success in developing the claimed hydrotalcite which is intercalated by precipitated silica when neither of the two components of the composition (a magnesium aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4; and precipitated silica) has been described in Kaminski. Therefore there would not have been a reasonable expectation of success in modifying Kaminsky to obtain the applicants' invention.

To establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations. The independent claim recites a magnesium aluminum hydrotalcite intercalated by precipitated silica, the magnesium

aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4. One of ordinary skill in the art would recognize that Kaminsky does not teach a magnesium aluminum hydrotalcite intercalated by precipitated silica. The Office Action acknowledges that Kaminsky fails to disclose compositions comprising hydrotalcite intercalated by silica. (page 5, second paragraph). There is no mention of precipitated silica in Kaminsky. Nor does Kaminsky teach a magnesium aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4. Therefore Kaminsky does not teach or suggest all the claim limitations.

Applicants respectfully submit that Claims 22, 28-30 and 45 are not obvious over Kaminsky et al. Applicants therefore request the withdrawal of the rejections of Claims 22-30 under 35 U.S.C. § 103(a).

2. Claims 41 and 42 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaminsky et al. (US 7,046,439) in view of Bhattacharya (US 5,246,899)..

Claims 41 and 42 have been cancelled. However claim 22 contains the elements of previous claim 41. Applicants respectfully submit that the current claims are not obvious over Kaminsky et al. in view of Bhattacharya and that the current claims are allowable.

The teachings of Kaminsky have been discussed above.

Bhattacharya relates anionic hydrotalcite clays which are essentially carbonate-free and contain a one or more pH-dependent anion such as a boron-containing anion or Group Vb or VIb metalate located interstitially between the positively charged layers of metal hydroxides. Bhattacharya does not disclose

hydrotalcite intercalated by any type of silica and not by precipitated silica, as required by the instant claims.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. There is no suggestion or motivation in Kaminsky or Bhattacharya to modify Kaminsky to obtain the composition of the present invention. There is nothing in either Kaminsky or Bhattacharya that provides a suggestion or motivation to intercalate the claimed hydrotalcite with precipitated silica. Neither of these references mentions the use of precipitated silica. Nor is there any suggestion or motivation to use the hydrotalcites of Bhattacharya in the composition of Kaminsky. The Office Action states that in the instant case, the substitution of equivalent hydrotalcites requires no express motivations, as long as the prior art recognizes equivalency. (*In re Ruff*, 118 USPQ 340, 343 (CCPA 1958) However, the Office Action has not cited any prior art showing evidence of equivalency, as required in *In re Ruff*. Therefore there is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to obtain the applicants' invention.

To establish a *prima facie* case of obviousness, there must be a reasonable expectation of success. There would not be a reasonable expectation of success in obtaining the applicants' invention given the entirety of the teachings in Kaminsky and Bhattacharya. There would not be a reasonable expectation of success in obtaining the applicants' invention given that neither Kaminsky nor Bhattacharya teach or suggest a magnesium aluminum hydrotalcite intercalated by precipitated

silica, where the magnesium aluminum hydrotalcite has a Mg/Al molar ratio of between 2 and 4. There cannot be a reasonable expectation of success in developing the claimed hydrotalcite which is intercalated by precipitated silica when neither Kaminsky nor Bhattacharya mention a hydrotalcite intercalated by precipitated silica. Therefore there would not have been a reasonable expectation of success in combining the references to obtain the applicants' invention.

To establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations. The independent claim recites a magnesium aluminum hydrotalcite intercalated by precipitated silica, the magnesium aluminum hydrotalcite having a Mg/Al molar ratio of between 2 and 4. One of ordinary skill in the art would recognize that Kaminsky and Bhattacharya do not teach a magnesium aluminum hydrotalcite intercalated by precipitated silica. The Office Action acknowledges that Kaminsky fails to disclose compositions comprising hydrotalcite intercalated by silica. (page 5, second paragraph). There is no mention of precipitated silica in Kaminsky. There is no mention of silica and specifically precipitated silica in Bhattacharya. Therefore Kaminsky and Bhattacharya do not teach or suggest all the claim limitations.

Applicants respectfully submit that Claims 41 and 42 are not obvious over Kaminsky et al. in view of Bhattacharya. Applicants therefore request the withdrawal of the rejections of Claims 41 and 42 under 35 U.S.C. § 103(a).

If there are any questions concerning this Response or the application in general, Applicants invite the Examiner to telephone the undersigned at the Examiner's earliest convenience.

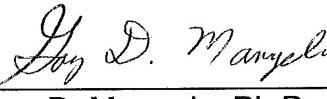
In view of the foregoing, it is believed that the record rejections cannot be maintained against the claims. Further, favorable action in the form of a Notice of Allowance is believed to be next in order and is earnestly solicited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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